White-winged Flufftail *Sarothrura ayresi* in Ethiopia: notes on habitat, densities, morphometrics, nests and eggs, and associated waterbirds

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Le Râle à miroir *Sarothrura ayresi* **en Ethiopie: notes sur l'habitat, la densité, les mensurations, le nid et les œufs, et les oiseaux d'eau associés.** Du 24 juillet au 2 août 2003, les auteurs ont mené des études à Weserbi (près de Sululta) et Berga, les deux seuls sites connus du Râle à miroir *Sarothrura ayresi*, espèce globalement menacée, en Ethiopie. Aucune vocalisation des râles n'a été entendue, malgré le fait que les oiseaux étaient en train de nicher et que les auteurs y ont prêté particulièrement attention avant l'aube et après le coucher du soleil. Un mâle adulte a été capturé à Weserbi et ses mensurations ainsi que des détails sur sa mue sont présentés. Des Râles à miroir ont été levés environ 20 fois pendant chacun des deux jours passés à Weserbi. A Berga, dix râles furent levés en 433 minutes en ratissant avec une corde l'ensemble des zones apparemment favorables, et beaucoup d'autres en dehors de cet exercice. Des détails sur les oiseaux d'eau rencontrés à Berga sont présentés et comparés à des données similaires de six des neuf zones humides principales en Afrique du Sud où l'espèce a été notée depuis les années 1980. L'oiseau d'eau le plus commun à Berga et dans les zones humides sud-africaines est la Bécassine africaine *Gallinago nigripennis*. Des données sont présentées sur 12 nids de bécassines trouvés à Weserbi et Berga. La taille des pontes de ces bécassines (quatre œufs) est exceptionellement élevée pour la Bécassine africaine. Des détails sont également présentés sur l'habitat du Râle à miroir à Berga, y compris l'habitat utilisé pour nicher. Des sept nids de Râle à miroir trouvés sur ce site, un contenait quatre œufs, tandis que les six autres étaient vides. Des données quantifiées sur les nids et les œufs sont présentées. Deux jours consacrés à la recherche de nouveaux sites de nidification potentiels du Râle à miroir au nord d'Addis-Abeba sont restés sans résultat. L'identification erronnée d'estomacs supposés avoir appartenu à des râles (Allan 2004) est corrigée.

Summary. We visited the only two known sites, Weserbi (near Sululta) and Berga, of the globally threatened White-winged Flufftail *Sarothrura ayresi* in the highlands of Ethiopia on 24 July–2 August 2003. No vocalisations of the flufftails were heard despite the birds breeding and our listening for them before and after sunrise and sunset. An adult male was captured at Weserbi and details of its measurements and moult are presented. White-winged Flufftails were flushed on *c.*20 occasions on each of two day-trips to Weserbi. At Berga, ten flufftails were flushed during 433 minutes of rope-dragging covering all apparently suitable habitat and many more were flushed while at this wetland engaged in other activities. Details of other large waterbirds encountered at Berga are presented and compared with similar data from six of the nine main wetlands in South Africa where the species has been recorded since the 1980s. African Snipe *Gallinago nigripennis* was the most common large waterbird at both Berga and the South African wetlands. Details are presented of 12 snipe nests found at Weserbi and Berga. Clutch size (typically four eggs) was unusually large for African Snipe. Details are also presented of White-winged Flufftail habitat, including breeding habitat, at Berga. Of the seven White-winged Flufftail nests found at this site, one contained four eggs, whilst the others were empty. Quantified details of the nests and eggs are presented. Two days were spent searching unsuccessfully for potential new White-winged Flufftail breeding sites north of Addis Ababa. An error presented in Allan (2004) relating to the misidentification of alleged flufftail stomachs is corrected.

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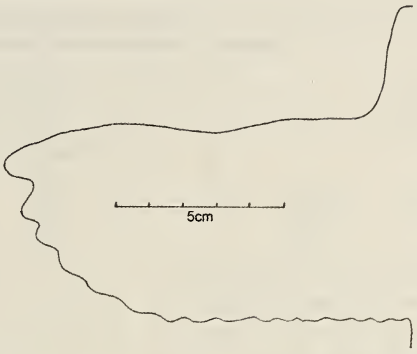

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White-winged Flufftail's *Sarothrura ayresi* global conservation status is 'Endangered' and its total population size is estimated at *c.*700 individuals (BirdLife International 2000, 2005). The presence of this Afrotropical endemic has been confirmed in only three countries: Ethiopia, South Africa and Zimbabwe; records from Rwanda and Zambia being unconfirmed (BirdLife International 2000). In Ethiopia it currently is known from two sites, Weserbi, in the Sululta area, and Berga, and it has been proved to breed at both (Atkinson *et al.* 1996, Taylor 1997, 1999, BirdLife International 2000). Both sites are Important Bird Areas (Fishpool & Evans 2001). In South Africa, where there is no confirmed evidence of breeding, the species has been recorded from nine main sites (all of which are within Important Bird Areas) since the 1980s and the total estimated population is 235 birds (BirdLife International 2000, Taylor 2000). In Zimbabwe there are two records from the 1970s and evidence for possible breeding in the 1950s (Hopkinson & Masterson 1984, Taylor 1994, BirdLife International 2000), although the first confirmed

Figure 1. Head of adult male White-winged Flufftail *Sarothrura ayresi*, Weserbi, Ethiopia, 24 July 2004 (Alistair M. McInnes)

Râle à miroir *Sarothrura ayresi*, tête de mâle adulte, Weserbi, Ethiopie, 24 juillet 2004 (Alistair M. McInnes)

Figure 2. Upperwing pattern of adult male White-winged Flufftail *Sarothrura ayresi*, Weserbi, Ethiopia, 24 July 2004 (Alistair M. McInnes)

Râle à miroir *Sarothrura ayresi*, mâle adulte, pattern du dessus de l'aile. Weserbi, Ethiopie, 24 juillet 2004 (Alistair M. McInnes)

Figure 3. Open-wing outline (right wing; taken with bird lying on its back) of adult male White-winged Flufftail *Sarothrura ayresi*, Weserbi, Ethiopia, 24 July 2004

Contour de l'aile ouverte d'un Râle à miroir *Sarothrura ayresi*, mâle adulte (aile droite; prise avec l'oiseau couché sur le dos), Weserbi, Ethiopie, 24 juillet 2004

Figure 4. Active White-winged Flufftail *Sarothrura ayresi* nest, Berga, Ethiopia, 31 July 2004 (David G. Allan)

Nid occupé du Râle à miroir *Sarothrura ayresi*, Berga, Ethiopie, 31 juillet 2004 (David G. Allan)

Table 1. Results of rope-dragging at Berga 26–27 July 2003.
Tableau 1. Résultats du ratissage avec corde du milieu à Berga, 26–27 juillet 2003.

Section/Date	southeast — 26 July						northeast — 27 July						northwest — 27 July					
Transect no.	1	2	3	4	5	6	1	2	3	4	5	6	1	2	3	4		
Time		12h30–14h33		15h05–15h25	15h25–15h45	16h11–16h35	09h30–09h55	09h56–10h26	10h56–10h42	10h42–10h55	10h55–11h13	11h13–11h25	12h00–12h28	12h28–12h55	12h59–13h30	13h30–13h46	Total	Birds/60 mins
Mins		123		20	20	24	25	30	46	13	18	12	28	27	31	16	433	
Long-tailed Cormorant *Phalacrocorax africanus*	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.14
Black-headed Heron *Ardea melanocephela*	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0.14
Blue-winged Goose *Cyanochen cyanopterus*	0	0	2	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0.28
Yellow-billed Duck *Anas undulata*	0	0	1	0	0	2	1	0	1	0	0	2	0	1	0	0	8	1.12
African Water Rail *Rallus caerulescens*	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	0.28
Rouget's Rail *Rougetius rougetti*	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0.14
White-winged Flufftail *Sarothrura ayresi*	1	0	3	0	0	0	1	2	0	0	0	0	1	2	0	0	10	1.40
African Snipe *Gallinago nigripennis*	11	19	6	11	16	10	4	7	5	3	3	4	4	6	5	9	123	17.22

description of eggs from Ethiopia (Taylor 1999, Taylor *et al.* 2004) further calls into question the early putative Zimbabwean breeding evidence (Taylor *et al.* 2004).

It is uncertain if the species migrates between Ethiopia and South Africa or if each country supports its own isolated population (BirdLife International 2000). Enigmatically, this flufftail's vocalisations have been reported only from South Africa, where the purported main call has been likened to, and apparently is easily confused with, the unison call of the Grey Crowned Crane *Balearica regulorum* (Taylor 1998, BirdLife International 2000). The habitat of the species comprises seasonally flooded upland marshes and the major threat faced by this flufftail is the loss and degradation of these wetlands (BirdLife International 2000).

Here we present results of field work on White-winged Flufftails at Weserbi (09°12'N 38°43'E) and Berga (09°16'N 38°23'E) marshes in Ethiopia, conducted from 24 July to 2 August 2003. We visited Weserbi marsh twice (on 24 July and 2 August) and Berga marsh on five days (25–28 and 31 July). A comparison of the waterbird populations present at Berga and at South African wetlands where White-winged Flufftails have been reported is presented. In addition, we undertook a two-day vehicle trip north of Addis Ababa to search for additional White-winged Flufftail breeding sites. A popular account covering aspects of this work was presented by Allan (2004). Information presented in Allan (2004) is not repeated here, but additional details of the results are given, especially as related to quantified data. An error in the earlier account is corrected.

Aims of the study

Our major aims during this Ethiopian study were the following:

1) To collect the first descriptions and tape-recordings of the calls of White-winged Flufftail on their confirmed breeding grounds.
2) To capture the flufftails wherever possible, to gather morphometric and moult information.
3) To attempt quantified censuses of the flufftails at their breeding wetlands by plotting calling males and using playback and rope-dragging, and to record details of other large waterbird species encountered during these censuses.
4) To note habitat details at the areas in the wetlands where the flufftails occur.
5) To search for flufftail nests and other evidence of breeding.
6) To search for new breeding sites of flufftails in the Ethiopian highlands.
7) To collect feather samples of resident Ethiopian highland birds, especially large waterbirds, present at the flufftail breeding wetlands, and from the flufftails themselves, for potential trace-element analysis relevant to investigating the potential migration of the flufftails between Ethiopia and South Africa.

Table 2. Comparison of results of rope-dragging at South African wetlands (Wakkerstroom, Vanger, Bedford-Chatsworth, Murphy's Rust, Franklin and Hebron) in 2001–2004 (covering a total of 27 hours and 8 minutes) and at Berga, Ethiopia, July 2003 (covering a total of 7 hours and 13 minutes).

Tableau 2. Comparaison des résultats du ratissage avec corde des zones humides sud-africaines (Wakkerstroom, Vanger, Bedford-Chatsworth, Murphy's Rust, Franklin et Hebron) en 2001–2004 (27 heures et 8 minutes au total) et à Berga, Ethiopie, juillet 2003 (7 heures et 13 minutes au total).

	Wakkerstroom		Vanger		Bedford/ Chatsworth		Murphy's Rust		Franklin		Hebron		**South Africa Totals**		Berga	
	Dec. 2002		Sep. 2001		Sep. & Dec. 2001 Dec. 2002		Dec. 2001		Jan. 2002		Feb. 2004				July 2003	
	n=146 mins	birds/60 mins	*n*=44 mins	birds/60 mins	*n*=928 mins	birds/60 mins	*n*=148 mins	birds/60 mins	*n*=252 mins	birds/60 mins	*n*=110 mins	birds/60 mins	***n*=1628 mins**	**birds/60 mins**	*n*=433 mins	birds/60 mins
Long-tailed Cormorant *Phalacrocorax carbo*	0		0		0		0		1	0.2	0		**1**	**0.04**	1	0.14
Black-headed Heron *Ardea melanocephala*	0		0		3	0.2	0		4	1	5	2.7	**12**	**0.44**	1	0.14
Purple Heron *A. purpurea*	0		0		1	0.1	0		1	0.2	0		**2**	**0.07**		
Little Egret *Egretta garzetta*	0		0		0		0		2	0.5	0		**2**	**0.07**		
Yellow-billed Egret *E. intermedia*	0		0		0		0		1	0.2	0		**1**	**0.04**		
Hadeda Ibis *Bostrychia hagedash*	0		0		6	0.4	0		0		0		**6**	**0.22**		
Blue-winged Goose *Cyanochen cyanopterus*	0		0		0		0		0		0				2	0.28
Yellow-billed Duck *Anas undulata*	4	1.6	0		78	5.5	11	4.5	40	9.6	4	2.2	**137**	**5.05**	8	1.12
African Black Duck *A. sparsa*	0		0		2	0.1	0		0		0		**2**	**0.07**		
Hottentot Teal *A. hottentota*	0		0		0		0		2	0.5	0		**2**	**0.07**		
Spur-winged Goose *Plectropterus gambensis*	0		0		5	0.4	0		5	1.2	20	10.9	**30**	**1.11**		
African Marsh Harrier *Circus ranivorus*	2	0.8	0		8	0.6	0		2	0.5	2	1.1	**14**	**0.52**		
Wattled Crane *Bugeranus carunculatus*	0		0		4	0.3	0		0		3	1.6	**7**	**0.26**		
Grey Crowned Crane *Balearica regulorum*	1	0.4	0		10	0.7	1	0.4	12	2.9	2	1.1	**26**	**0.96**		
African Water Rail *Rallus caerulescens*	4	1.6	0		2	0.1	2	0.8	5	1.2	0		**13**	**0.48**	2	0.28
Rouget's Rail *Rougetius rougetti*	0		0		0		0		0		0				1	0.14
Corncrake *Crex crex*	0		0		1	0.1	0		0		1	0.6	**2**	**0.07**		
Black Crake *Amaurornis flavirostris*	0		0		0		0		1	0.2	0		**1**	**0.04**		
Baillon's Crake *Porzana pusilla*	0		0		3	0.2	0		4	1	0		**7**	**0.26**		
Red-chested Flufftail *Sarothrura rufa*	0		0		1	0.1	1	0.4	0		0		**2**	**0.07**		
White-winged Flufftail *S. ayresi*	0		0		0		0		0		0				10	1.4
Purple Swamphen *Porphyrio porphrio*	0		0		0		0		1	0.2	0		**1**	**0.04**		
Common Moorhen *Gallinula chloropus*	0		0		0		1	0.4	7	1.7	0		**8**	**0.3**		
Three-banded Plover *Charadrius tricollaris*	0		0		0		0		0		1	0.6	**1**	**0.04**		
Blacksmith Lapwing *Vanellus armatus*	5	2.1	0		2	0.1	0		0		3	1.6	**10**	**0.37**		
African Wattled Lapwing *V. senegallus*	4	1.6	0		3	0.2	0		0		0		**7**	**0.26**		
Wood Sandpiper *Tringa glareola*	0		0		0		0		2	0.5	0		**2**	**0.07**		
Common Greenshank *T. nebularia*	0		0		0		0		1	0.2	0		**1**	**0.04**		
African Snipe *Gallinago nigripennis*	24	9.8	8	10.9	178	12.5	20	8.2	41	9.8	13	7.1	**284**	**10.47**	123	17.22
African Grass Owl *Tyto capensis*	4	1.6	0		4	0.3	0		1	0.2	1	0.6	**10**	**0.37**		
Marsh Owl *Asio capensis*	1	0.4	0		31	2.2	0		0		0		**32**	**1.18**		
Malachite Kingfisher *Alcedo cristata*	0		0		1	0.1	0		1	0.2	0		**2**	**0.07**		
Cape Wagtail *Motacilla capensis*	0		0		6	0.4	1	0.4	0		0		**7**	**0.26**		
TOTALS	**49**		**8**		**349**		**37**		**134**		**61**		**632**	**23.30**	148	20.50

These samples are still being analysed and this aspect of the study will not be reported on further here.

Results and discussion

White-winged Flufftail vocalisations

No flufftail vocalisations were heard at any stage. Weserbi was visited only during daylight hours, but at Berga we listened for the birds before and after sunset, and before and after sunrise (in addition to the many daylight hours we were present). The periods devoted to this at Berga were as follows: 25 July: 16h30 until *c.*19h30 (late afternoon until well after dark); 26 July: 05h30–07h00 (dark until full light); 27 July: 05h45–07h00 and 18h30–19h45; and 28 July: 05h30–09h00. No calling was noted, despite the birds being clearly in the early stages of breeding at Berga (see below) and calling from other rallids present was common, e.g. African Water Rail *Rallus caerulescens* and Rouget's Rail *Rougetius rougetti*. A single Red-chested Flufftail *Sarothrura rufa* was tape-recorded at Berga on our last 'listening stint'. This species has been noted previously at Berga (Taylor 1997).

We can only speculate as to our failure to hear any White-winged Flufftails. Possibly they call at their breeding sites only prior to initiating nesting and were already silent by the time we arrived. Perhaps they only call very late at night, when we were absent. Possibly their calls are inconspicuous and we overlooked them. Conceivably we were unlucky and they did not call (at least within earshot) during our five prime listening opportunities. Or maybe White-winged Flufftails are totally silent throughout their sojourn on their breeding grounds. This, however, would be remarkable considering the vocal nature of the Rallidae, at least during the breeding season (Taylor & van Perlo 1998). Taylor *et al.* (2004) also report the species to be ostensibly silent on the breeding grounds. Taylor & van Perlo (1998) point out that the only other members of the Rallidae that have white secondaries are the three species of *Coturnicops*. They describe the main call of one (Speckled Rail *C. notatus* of southern South America) as 'unobtrusive and easily masked by other marsh sounds', another (Yellow Rail *C. noveboracensis* of North America) as 'a series of metallic clicks' and the third (Swinhoe's Rail *C. exquisitus* of the Far East) as 'not recorded'. *Sarothrura* and *Coturnicops* may be closely related (Taylor & van Perlo 1998).

White-winged Flufftail morphometrics and moult

An adult male White-winged Flufftail was caught by hand, and subsequently released unharmed, at Weserbi on 24 July (Figs. 1–2). The following measurements were taken: wing-length (flattened chord) 72 mm, tarsus-length (notch on rear of tibio-tarsal joint to point of divergence of upper surface of inner toe) 23.8 mm, culmen-length (to feathering) 10.6 mm. In addition, its open-wing outline was traced onto paper (Fig. 3). There was no sign of moult in the remiges and its entire plumage appeared very fresh.

Taylor & van Perlo (1998) present the following relevant measurements for White-winged Flufftail males: mean wing-length (flattened chord) 76.3 mm (range=73.0–80.0; n=14), mean tarsus-length (inter-tarsal joint to distal end of last undivided scale before toes diverge) 18.5 mm (range=17.0–19.5; n=14) and mean culmen-length (to base) 12.4 mm (range=12.0–13.5; n=13). Our wing-length, using the same method as Taylor & van Perlo (1998), was 1 mm shorter than their presented range. Our tarsus- and culmen-lengths were measured differently to Taylor & van Perlo (1998) and are not directly comparable. Taylor & van Perlo (1998) also state that Ethiopian birds examined in late July were in very fresh plumage.

Large waterbird censuses

The absence of calling ruled out any census of White-winged Flufftail based on plotting calling males or on playback efforts. White-winged Flufftails were flushed on *c.*20 occasions on each of the two day-trips to Weserbi. On both days, many of these instances probably represented the same individuals flushed more than once. No rope-dragging was performed at Weserbi. Atkinson *et al.* (1996) estimated that two pairs were present at Weserbi in 1995. Taylor (1997) estimated the site to support 10–15 pairs in 1996 and 1997, and we would subjectively agree with this estimate.

A major activity at Berga comprised rope-dragging, a widely accepted method of assessing cryptic-waterbird abundances (see e.g. Green 1985). This method was used at Berga previously

by Taylor (1999), and we employed it on 26–27 July. We covered all of the apparently suitable habitat, subjectively estimated at *c.*50–100 ha. Taylor (1997) estimated the suitable habitat at *c.*200 ha in 1997. The number of large waterbirds counted during these efforts is presented in Table 1. Ten White-winged Flufftails were flushed during 433 minutes of rope-dragging (and many others were flushed while we were at the wetland engaged in other activities). The flufftail was the second-most common of the eight large waterbird species encountered while rope-dragging, after the ubiquitous African Snipe *Gallinago nigripennis*. Taylor (1997) estimated the flufftail population at Berga at *c.*200 pairs. This is hard to reconcile with our flushing of only ten individuals whilst rope-dragging the entire area. However, the number of flufftails that failed to flush, and therefore remained undetected, during the rope-dragging is unknown. In addition, the relatively high number of nests found (see below), especially on 31 July, and the close spacing of some of these, suggests that flufftail numbers were much higher than indicated by the rope-dragging efforts.

It was our impression that most, if not all, White-winged Flufftails flushed at both Weserbi and Berga were males, based on the bright chestnut appearance of their foreparts. However, as sexual dimorphism in plumage features is reduced in this flufftail (Taylor *et al.* 2004), with females also showing some chestnut-brown on the foreparts, this conclusion is tentative. Many of the birds flushed were not seen well but those that were all seemed to be males. No flufftails were seen on the ground.

Table 2 compares the results of our rope-dragging with comparable rope-dragging efforts made in South Africa in 2001–04 (all during the austral spring–summer periods September–February) at six of the nine major wetlands where the species has been recorded since the 1980s (although our attempts to locate White-winged Flufftails in South Africa have been singularly fruitless). African Snipe also was easily the most commonly encountered species in the South African wetlands, although its abundance was higher at Berga (10.5 snipe/60 minutes of rope-dragging vs. 17.2 snipe/60 minutes). Interestingly, Yellow-billed Duck *Anas undulata* was the second-most commonly encountered species in South Africa and the third at Berga. Overall, the South African wetlands boasted a much higher diversity of large waterbird species than Berga (30 vs. 8). This is unsurprising, as more rope-dragging was performed in South Africa (1,628 mins vs. 433 mins), over a longer time period, during periods when Palearctic migrants are present (as opposed to absent in the case of the Berga survey; although only three species at the South African wetlands were Palearctic migrants: Corncrake *Crex crex*, Wood Sandpiper *Tringa glareola* and Common Greenshank *T. nebularia*), and at more (six vs. one) and widely spread localities. The number of large waterbird individuals counted per 60 minutes of rope-dragging was similar between the South African wetlands and Berga (23.3 vs. 20.5).

Additional large waterbirds of conservation interest noted at Berga at times other than while rope-dragging were a pair of Wattled Cranes *Bugeranus carunculatus* (Vulnerable), apparently only recorded there once previously in August 1998 (Fishpool & Evans 2001), and a single Black Crowned Crane *Balearica pavonina* (Near Threatened).

African Snipe nests

We located 12 snipe nests, one at Weserbi and 11 at Berga, on 24–31 July. Nine of these contained four eggs, two had three eggs and one contained two eggs. One of the nests with three eggs obviously had been damaged by a flash-flood on the previous evening; one of the eggs had been partially displaced from the nest cup and another had been washed out of the nest and was lying adjacent to it; additional eggs may have been washed away completely. The nest with two eggs and the other with three eggs may have held incomplete clutches (no nests were subjected to follow-up visits). Taylor (1999) found 'at least 20 nests' of snipe at Berga in 1999 'most with a full clutch of four eggs'. Clutch size of African Snipe in southern Africa is typically two eggs, occasionally one or three (Maclean 1993); for the entire continent it is given as 2–3 eggs (Urban *et al.* 1986). Clutch size in Ethiopia—typically four eggs—therefore is remarkably large. Common Snipe *G. gallinago*, known only as a non-breeding migrant to Ethiopia (Urban & Brown 1971) and Africa (Urban *et al.* 1986), has a typical clutch size of four eggs (Cramp & Simmons 1982), raising the interesting, but admittedly unlikely, possibility that the snipe breeding in the Ethiopian highlands may represent this species. An examina-

tion of any specimens collected from Ethiopian highland wetlands during the boreal summer might cast further light on this issue. The Ethiopian highlands support isolated breeding populations of three other bird species characteristic of the Palearctic region: Golden Eagle *Aquila chrysaetos*, discovered only in 1993 (Clouet & Barrau 1993), Ruddy Shelduck *Tadorna ferruginea* (Ash 1977) and Red-billed Chough *Pyrrhocorax pyrrhocorax* (Urban & Brown 1971).

The snipe nests we found were located in short, dense aquatic vegetation comprising sedges, grasses and flowers (Asteraceae), including four nests in sedge tufts (one an *Eleocharis* sp.), one in a tuft of the aquatic grass *Odontelytrum abbysinicum* and one situated in the base of an aquatic flower. The nests were well-concealed pads of grasses, sedges and flower stems. Their bases were *c.*1 cm above water level. In the areas where the nests were located mean water depth was 6 cm (SD=4 cm, range 1–13 cm, *n*=12) and mean vegetation height 42 cm (SD=20 cm, range 30–100 cm, *n*=12). Mean nest diameter was 11 cm (SD=1 cm, range 10–13 cm, *n*=10) and mean egg dimensions were 40.7 × 29.3 (37.4–45.1 × 28.0–30.6, *n*=44).

White-winged Flufftail habitat

Atkinson *et al.* (1996), Tilahun *et al.* (1996), Taylor & van Perlo (1998), Fishpool & Evans (2001) and Taylor *et al.* (2004) provide general descriptions of White-winged Flufftail habitat at Weserbi and Berga marshes, including botanical details, and we have little to add to these accounts.

We recorded the habitat at those places where we flushed the ten flufftails while rope-dragging at Berga. Mean water depth was 4.9 cm (SD=2.2 cm, range 2–8 cm, *n*=9) and mean vegetation height 44.4 cm (SD=16.1 cm, range 25–80 cm, *n*=9). As mentioned above, the wetlands comprise a mixture of aquatic grasses, sedges and Asteraceae. At the ten spots from which flufftails were flushed, one comprised largely sedges, one largely Asteraceae, four a mixture of sedges and Asteraceae, and four a mix of grasses, sedges and Asteraceae. Particularly prominent grasses included *Odontelytrum abbysinicum* and a possible *Leersia* sp., and amongst prominent sedges an *Eleocharis* sp. It was our impression that an abundance of a large, leafy, yellow-flowered Asteraceae (*Trifolium*/ *Haplocarpha*/*Ranunculus* sp.?), amongst a mixture of aquatic grasses and, especially, sedges, was the most characteristic botanical feature of places where flufftails were flushed both at Berga and at Weserbi. At Berga most flufftails were flushed in fairly deep water close to the main watercourse in the central half of the wetland, in areas characterised by a particular abundance of Asteraceae, relative to the shallower outer half of the wetland, characterised by an apparently greater preponderance of sedges.

White-winged Flufftail nests

Seven White-winged Flufftail nests were located at Berga, one each on 25 and 26 July and five on 31 July. The first nest was shown to us by local people, the second was found while rope-dragging and the five nests located on 31 July were all found by local people who joined us in a casual search for nests on that day covering only a relatively small section of the marsh. All but one of the nests was empty and apparently still under construction.

The active nest (Fig. 4), located on 31 July, was *c.*100 m from the main watercourse, in a waterlogged area covered by dense aquatic vegetation *c.*40 cm high, comprising aquatic grasses, sedges and Asteraceae. Water depth was less than 1 cm. The nest was built in a sedge (*Cyperus* sp.) tuft 40 cm high. It was a ball-shaped structure and its base was set *c.*1 cm above ground level with a side entrance. Live plant stems had been pulled over the top and woven together to form a dome. Nest dimensions were: width 12 cm, height 17.5 cm, entrance width 5.5 cm, entrance height 6.5 cm, interior width 8.5 cm, interior height 8.5 cm. The entrance faced south. The nest contained four unmarked, ivory-white eggs. Egg measurements and weights were: 29.3 × 19.8 (5.5 g), 28.9 × 20.2 (5.8 g), 28.8 × 20.1 (5.8 g) and 28.4 × 19.9 (5.3 g).

The six empty nests were all found in the same general area and habitat, and were similar in structure. Additional details were noted for three of these. Two were in sedge tufts and a third was interwoven between sedge and aquatic grass tufts. Tuft height was 40–45 cm (*n*=3). The bases of the nests were 1–4 cm above ground level (*n*=3). Nest dimensions were: width 12–14 cm, height 14–19 cm, entrance width 5.0–8.5 cm, entrance height 6.0–9.0 cm, interior width 8.9–9.0 cm, interior height 9.5–11.0 cm (*n*=3). Entrance aspects were south (*n*=1), north-west (*n*=1) and

north-east (n=1). One nest was only *c.*5 m from another and a third was *c.*30 m from these two.

No flufftails were seen at any of these nests, although a few were flushed in the general area. The nests were situated in the shallower outer half of the wetland (water depth less than 1 cm), largely away from the deeper, more central parts of the marsh (water depth 2–8 cm, mean 4.9 cm) where we flushed most flufftails.

Taylor (1999) and Allan (2004) present brief popular descriptions of the nests and eggs of White-winged Flufftails from Berga, both accompanied by photographs. Taylor *et al.* (2004) provide a more formal description of a single nest, the same as that covered by Taylor (1999). The nest was *c.*60 m from the main watercourse in aquatic vegetation 30–45 cm tall and dominated by the sedge *Eleocharis marginulata*, a grass species and a flower *Ranunculus* sp. Tuft height was 40–45 cm. The nest was 1 cm above ground in an area with water depth 1–5 cm. It was a ball-shaped structure constructed of live *Eleocharis*, grass and *Ranunculus* leaves. Nest dimensions were: width 15 cm, height 17.5 cm, entrance width 4.8 cm, entrance height 5 cm, interior width 9.8 cm, interior height 9.4 cm. The complete clutch consisted of six unmarked white eggs, suggesting that the clutch we found may have been incomplete, and the eggs were laid in mid-August 1999. Dimensions and weights of three eggs were: 27.2 × 19.8 (5.47 g), 27.3 × 20.0 (5.65 g) and 27.8 × 19.9 (5.78 g). In all respects, the breeding habitat, nest and eggs described by Taylor *et al.* (2004) are similar to those found by us.

Searches for potential new White-winged Flufftail breeding sites

Our relatively brief search for potential new White-winged Flufftail breeding sites comprised a two-day trip starting 29 July. We travelled from Addis Ababa north-east to Debre Birhan, where we over-nighted, and then west to the Fitche area, before returning to Addis Ababa late on 30 July. The main, and apparently only, roads between these three urban centres were followed. The total distance covered was 435 km. We stopped the vehicle and walked potentially suitable wetland areas visible from the roads. Six sites were examined at the following localities: 09°15'N 39°12'E, 09°16'N 39°14'E, 09°30'N 39°27'E (Hadewa Shet River), 09°36'N 39°30'E (International Livestock Research Institute, Debre Birhan Station); 09°49'N 38°35'E (Arkiso River) and 09°34'N 38°51'E. No White-winged Flufftails were found at any of these sites. The first two localities were extremely small and unlikely candidates for the species. The other four were larger and parts of extensive wetland systems. All but one of these, however, were heavily grazed by livestock and did not present suitable vegetation height and density. The exception, the wetland at the International Livestock Research Institute 9 km south of Debre Birhan, presented an extensive wetland area with some potentially suitable patches of habitat. Snipe were drumming at this site, the only place where we found this away from Weserbi and Berga. An intensive walk around the wetland over several hours, however, failed to produce any flufftails and the vegetation was perhaps too short, sparse and patchy overall, and the wetland too deeply flooded and channeled in many areas. This wetland was entirely fenced, with surrounding livestock excluded, hence its relatively tall aquatic vegetation.

This route had already been covered by Dr Barry Taylor accompanied by one of us (MW) in earlier searches for the flufftail, although the Arkiso River site apparently was the only locality where our actual searching efforts overlapped.

White-winged Flufftail stomachs and predation—a correction

Allan (2004) reported on observations made during our visit to Weserbi, on 24 July, of an Augur Buzzard *Buteo augur* capturing a flushed White-winged Flufftail, and on the collection of three stomachs of flufftails, one apparently from the captured flufftail, all apparently discarded by the buzzard while feeding on the birds. A subsequent detailed examination revealed that the stomachs were of rodents. The exact sequence of events was that one of our party (Deon Coetzee) observed the Augur Buzzard capturing a flushed flufftail as it landed in a sparse wheat field adjacent to the wetland. He flushed the buzzard, and picked up several flufftail feathers displaced by it when the flufftail was caught. The buzzard flew off with the flufftail to a low bush in the wetland. A local herdsman then ran to the bush, again flushing the buzzard which flew off with the flufftail. The herdsman picked up several more flufftail feathers from below the bush, as well as a stomach. We

thus assumed the stomach to have come from the flufftail and ascribed the other two lone stomachs found elsewhere in the wetland as also coming from flufftails. It seems probable that the buzzard was, in fact, feeding primarily on rodents and that the capture of the flufftail was an isolated and 'unnatural' incident related to our disturbance of the birds. The comments in Allan (2004) as to the over-grazed nature of the wetland having resulted in this predation of the flufftails by the buzzard therefore are groundless.

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References

Allan, D. G. 2004. Ethiopia—enigmas and endemics. *Africa—Birds & Birding* 9(2): 28–34.

Ash, J. S. 1977. First known breeding of the Ruddy Shelduck *Tadorna ferruginea* south of the Sahara. *Bull. Br. Ornithol. Cl.* 97: 56–59.

Atkinson, P., Robertson, P., Dellelegn, Y, Wondafrash, M. & Atkins, J. 1996. The recent rediscovery of White-winged Flufftails in Ethiopia. *Bull. ABC* 3: 34–36.

BirdLife International. 2000. *Threatened Birds of the World.* Barcelona: Lynx Edicions & Cambridge, UK: BirdLife International.

BirdLife International. 2005. Species fact sheet: *Sarothrura ayresi.* Downloaded from http://www.birdlife.org on 2 August 2005.

Fishpool, L. D. C. & Evans, M. I. (eds.) 2001. *Important Bird Areas in Africa and Associated Islands: Priority Sites for Conservation.* Newbury: Pisces Publications & Cambridge, UK: BirdLife International.

Green, R. E. 1985. *The Management of Lowland Wet Grasslands for Breeding Waders.* Sandy, UK: Royal Society for the Protection of Birds.

Hopkinson, G. & Masterson, A. N. B. 1984. The occurrence and ecological preferences of certain Rallidae near Salisbury, Zimbabwe. *Proc. V Pan-Afr. Orn. Congr.*: 425–440.

Maclean, G. L. 1993. *Roberts' Birds of Southern Africa.* Sixth edn. Cape Town: Trustees of the John Voelcker Bird Book Fund.

Taylor, B. 1997. Hope for the White-winged Flufftail. *Africa—Birds & Birding* 2(5): 14–15.

Taylor, B. 1999. White-winged Flufftails in Ethiopia - another mystery solved. *Africa—Birds & Birding* 4(5): 23–25.

Taylor, B. & van Perlo, B. 1998. *Rails: A Guide to the Rails, Crakes, Gallinules and Coots of the World.* Robertsbridge: Pica Press.

Taylor, B., Wondafrash, M. & Demeke, Y. 2004. The nest, eggs and chicks of the White-winged Flufftail *Sarothrura ayresi. Bull. Br. Ornithol. Cl.* 124: 233–239.

Taylor, P. B. 1994. The biology, ecology and conservation of four flufftail species, *Sarothrura* (Aves: Rallidae). Ph.D. thesis. Pietermaritzburg: University of Natal.

Taylor, P. B. 2000. White-winged Flufftail *Sarothrura ayresi.* In Barnes, K. N. (ed.) *The Eskom Red Data Book of South Africa, Lesotho and Swaziland.* Johannesburg: BirdLife South Africa.

Tilahun, S., Edwards, S. & Egziabher, T. B. G. (eds.) 1996. *Important Bird Areas of Ethiopia: A First Inventory.* Addis Ababa: Ethiopian Wildlife & Natural History Society.

Urban, E. K. & Brown, L. H. 1971. *Checklist of the Birds of Ethiopia.* Addis Abba: Addis Ababa University Press.

Urban, E. K., Fry, C. H. & Keith, S. (eds.) 1986. *The Birds of Africa.* Vol. 2. London, UK: Academic Press.

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